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Book Name:	**Research Updates in Mathematics and Computer Science**
Manuscript Number:	**Ms_BP_7310C**
Title of the Manuscript:	**Investigating meteorological drought impact on groundwater in the aquifer system of Xanthi plain, NE Greece, through fuzzy linear regression analysis**
Type of the Article	**Book chapter**

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PART 1: Review Comments

	Reviewer's comment	**Author's comment***(If agreed with the reviewer, correct the manuscript and highlight that part in the manuscript. Authors must write his/her feedback here)*
Is the manuscript important for the scientific community? Please write a few sentences explaining your answer	**Yes, the manuscriptis important for the scientificcommunity for severalreasons:** **Practical Applications**:The findings of the study have practical implications for managinggroundwaterresources in regionsfacingsimilar challenges, particularly in semi-aridclimates. **Insights into Complex Interactions:**By unveiling intricate relationships between drought indices and water table fluctuations, the research provides valuable insights into the complex interactions between meteorological drought, local climate conditions, and hydrogeological factors. **Methodological Innovation:** The use of fuzzy regression methodologies, particularly Tanaka's fuzzy linear regression model, represents an innovative approach to studying the impact of meteorological drought on groundwater dynamics. This methodological innovation contributes to advancing the field of hydrogeology and expands the toolkit available for researchers studying similar phenomena in other regions.	
Is the title of the article suitable? Do you have any alternative Title in your mind?	Titltle is good any how but It is better modified as **Investigating the Impact of Meteorological Drought on Groundwater Dynamics in a Heterogeneous Aquifer System Using Fuzzy Regression: A Case Study in Southeastern Xanthi, NE Greece**	
Is the abstract of the article comprehensive? If your answer is No, please provide suggestions	The abstract provides a comprehensive overview of the study, covering key elements such as the research area, methodology, findings, and implications. However, to enhance clarity and conciseness, it could benefit from more precise language and a streamlined structure. **Specify the number of groundwater wells**: Instead of "a substantial quantity of groundwater wells (≥ 800)," provide the exact number if available. **Clarify the geographic location**: Rather than simply stating "southeast of Xanthi, NE Greece," specify the exact location in relation to prominent landmarks or geographical features for better context. **Simplify language**: Some phrases, such as "meteorological drought from the previous hydrological year," could be simplified for easier understanding. **Structure the abstract**: Consider breaking down the abstract into clear sections, such as objectives, methodology, findings, and implications, for better organization and readability. **Specify the modification to Tanaka's model**: Provide a brief explanation of the modification made to Tanaka's model to enhance clarity on the methodology used. **Clarity and Conciseness**: The paragraph contains several complex sentences that could be broken down for clarity.The use of technical terms such as "fuzzy set theory," "Standardized Reconnaissance Drought Index (RDISt)," and "Standardized Precipitation Index (SPI)" may be difficult for some readers to understand without further explanation. The sentence discussing the modification of Tanaka's model is quite lengthy and could be	

	simplified for better comprehension.	

BPI Review Form 070520

Do you think the English quality of the article is suitable for scholarly communications? If your answer is No, please provide suggestions	Not suitable since it contain grammer, spelling and problem of clarity, so edit according to comments given below : 1. NE Greece should be northeastern Greece. 2. Vistonida Lake should be Lake Vistonida. 3. Kosynthos River could be River Kosynthos. 4. groundwater wells (≥ 800) could be groundwater wells (800 or more). 5. linear relationship with the observed water table could be "linear relationship with observed water table levels. 6. Tanaka's model could be "Tanaka's fuzzy linear regression model. 7. "fuzzy outputs with intervals of values could be "fuzzy outputs with intervals of values assigned. 8. "To address potential irrational behavior" could be "To address potential inconsistencies." 9. "three suitability measures and a measure for comparing fuzzy numbers" could be "three suitability measures and a comparison measure for fuzzy numbers." 10. "Prefecture plain region" could be rephrased as "plain region of Xanthi Prefecture" for clarity. 11. "Xanthi Prefecture plain region" should have consistent formatting, either Xanthi Prefecture plain region or plain region of Xanthi Prefecture. 12. VIstonida Lake should be corrected to Vistonida Lake. 13. alluvial should be alluvium to match the context. 14. characteristics of the aquifer systems is grammatically correct but could be slightly clearer as characteristics of the aquifer system. 15. VIstonidaLake should be corrected to Vistonida Lake throughout the paragraph for consistency. 16. which was functioning" might read better as which functioned. 17. hydrological years, i.e. October–September should have an and before i.e. for better clarity. 18. j is the jth month of the ith year might be clearer as where j represents the month and i represents the year for clarity. 19. Fundamentals of fuzzy logic and sets applied in this research" should be capitalized as "Fundamentals of Fuzzy Logic and Sets Applied in This Research" for consistency. 20. from inaccurate or partial knowledge"could be clearer as "from incomplete or inaccurate knowledge." 21. "Klir and Yuan 1995" should be corrected to "Klir and Yuan, 1995." 22. "union of the strong 0-cut" might be clearer as "union of the strong 0-cut," for consistency. 23. "the strong zero-cut" should be "the strong 0-cut" for consistency. 24. "closed interval that contains the boundaries" could be clearer as "closed interval containing the boundaries" for conciseness. 25. "Hanss (2005)" should be corrected to "Hanss, 2005." 26. "based on the extension principle, as presented in Equation (12) (Buckley and Eslami 2002, Buckley et al. 2002), the result of Equation (25) will be a fuzzy number" - The phrase "based on the extension principle" is unclear here. It might be better to rephrase it for clarity. 27. which is always possible for α≤h, as aforementioned, according to the inclusion constraints of the Tanaka model. - as aforementioned could be replaced with "as mentioned earlier" for smoother flow. 28. Besides, the use of mean premises an assumption of a probability distribution, and thus such an assumption is avoided.- premises should be "presumes" for correct usage. 29. As presented in the following Section of Results and Discussion, the use of slightly improves -values.-As should be As for correct spelling.	

	30. Comparing of fuzzy measures - Comparing of should be Comparison of" for correct grammar. 31. multiple fuzzy linear regression, based on SPI, will produce another fuzzy outputs - fuzzy outputs should be fuzzy output for correct singular/plural agreement. 32. a comparison (in terms of smaller or greater) between these two fuzzy measures - smaller or greater should be smaller or larger for correct phrasing. 33. another fuzzy outputs - fuzzy outputs should be fuzzy output for correct singular/plural agreement. 34. Let be a fuzzy number - There seems to be a missing variable or term here, which should be defined for clarity. 35. Then, the left and right areas are the integral between the inverse functions of the left and right brunches of the membership functions of , respectively, and the x-axis.- brunches should be "branches" for correct spelling. 36. of Nguyen (2017) these areas are taken into account for ranking fuzzy numbers- The phrase of Nguyen (2017) is unclear here. It might be better to specify what is meant by of Nguyen (2017)" for clarity.	
Please provide your comments regarding the appropriateness of different sections of the manuscript.	Appropriate	
Do you think that the references in the manuscript are proper, recentand sufficient? **If you have any suggestions, please write here.**	Suice, but outdated one example following reference are uniqe from othersinterms of Autours, Journal/or book and page arangeemnts Ganoulis J. 2004. Intergrated Risk Analysis for Sustainable Water Resources Management. In: Comparative Risk Assessment and Environmental Decision Making, NATO Science Series, I. Linkov, A.B. Ramadan, (Eds.) Kluwer Academic Publishers, Dordrecht, Netherlands, pp. 275-286. Ganoulis J. 2008. Engineering Risk Analysis of Water Pollution: Probabilities and Fuzzy Sets. Wiley-Blackwell. Hanss M. 2005 Applied Fuzzy Arithmetic: An Introduction with Engineering Applications. Springer-Verlag Berlin Heidelberg, Netherlands Hayes M.J. 2000 Revisiting the SPI: Clarifying the Process. In: Drought Network News, International Drought Information Center and the National Drought Mitigation Center, University of Nebraska-Lincoln, USA, Volume 12(1), Winter 1999–Spring 2000, pp. 13-15. Klir G.J. & Yuan B. 1995. Fuzzy Sets and Fuzzy Logic. Theory and Applications. Prentice Hall, NJ, USA. And etc……. Please check others reference	

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PART 2:

	Reviewer's comment	**Author's comment***(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Birhanu Bekele Mencho**
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